

MEMORANDUM

Date: 25 July 2019

Waters GTS (TE 8298B-2) Calibration Power Supply Out Of Tolerance

Background:

On 15 July, 2019 Waters GTS on-site calibration done and found one of instrument TDK Lambda GENH60-12.5-LAN Power Supply calibration out of tolerance. 24 July 2019 replaced spare calibrated power supply ship from WPPL. Power supply installed calibrated value is within both OEM tolerance & Waters calibration tolerance. See table below or attachment 1:

Comparison Power Supply#2 SN: 11K58952 Calibration result for OEM Standard & Waters Specification

Device Calibrated	Nominal	OEM Calibration Standard				Waters Calibration Standard			
		Lower Limit	Calibration Measure	Upper Limit	Result	Lower Limit	Calibration Measure	Upper Limit	Result
Power Supply#2 SN: 11K58952	15V	14.92500V	14.99627V	15.07500V	PASSED	14.920V	14.99627V	15.060V	PASSED
	30V	29.85000V	29.99237V	30.15000V	PASSED	29.810V	29.99237V	30.090V	PASSED
	60V	59.70000V	59.99225V	60.30000V	PASSED	59.680V	59.99225V	60.120V	PASSED

Tester Status:

Currently all GTS instruments & cards were calibrated. Power Supply#2 that failed calibration on 15 Jul 19 was replaced on 24 Jul 19 with spare unit (SN: 11K58952). Tester need to perform "Self Test" before release to production, but self test result failed marginal at step "Test Pickering SPDT MUX" (measure value 1.527 ohm but spec <1.5 ohm). Matt (Engineer from Waters Milford) skip this step when remote access the tester on 25 Jul 19, the selftest passed the remaining steps, see Attachment 3 and email correspondence subject title "International OSER: 193436 waters GTS On site calibration" for details and recommendation to use the GTS tester.

Note:

1. Self-Test is tool to troubleshoot/diagnose GTS tester, we use difference FT Fixture & test program to perform production testing. Do not impact test coverage issues.
2. The self-test failed in Mux Relay 1.527 Ohm (Spec <1.5 Ohm). Difference is 0.027 Ohm. This high resistance measurement on Mux Relay do not impact the PCBA Test coverage.
3. Flex did not skip the self-test step. Self-Test is tool to troubleshoot/diagnose GTS tester after every calibration. Senai will perform the full self-test for coming schedule and Matt skip this step just for troubleshooting purposes as self-test will stop subsequent test when it failed. Matt need to skip it to observe any others failure, by continuing further testing.

Supporting Document:

- Attachment 1 - Comparison of Calibration result based on OEM standard & Waters specification.
- Attachment 2 - Calibration report for Power Supply#2 (PS2) SN: 11K58952 installed at GTS now (25 July 2019)
- Attachment 3 - Self Test passed test log (skip Test Pickering Relay Mux step)
- Attachment 4 - Email comment from Waters Milford on self-test result

Conclusion:

Based on above supporting document and self-test result, we would like to seek your approval for Flex Senai to proceed and use GTS tester for production.

Prepared By:

 ERTAD

Test Engineering
Flex Senai, Johor

26 July 2019

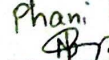
Review By:

 YOGANANDHAN

Product Quality Engineering
Flex Senai, Johor

26 July 2019

Approve By:

Phani Bhushan Nallajanula
 26 Jul 2019

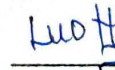
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Jay Mager 26 Jul 2019

 26 Jul '19

Flex Kallang, Singapore

Approve By:

 26 Jul 2019

Waters Pacific Pte Ltd, Singapore

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